

What is claimed is:

1. An electronic endoscope apparatus comprising:
 - an electronic endoscope equipped with an image pickup device;
 - a main unit which is connected with the electronic endoscope and includes a processor unit;
 - a common power/signal line which connects the electronic endoscope with the main unit;
 - a power supply circuit which is installed in the main unit and supplies power to the electronic endoscope via the common power/signal line;
 - a video waveform superimposing circuit which is installed in the electronic endoscope and superimposes a video signal obtained by the image pickup device on the power transmitted through the common power/signal line;
 - a pulse waveform superimposing circuit which superimposes reference pulses on a blanking period in the first field or first frame of the video signal;
 - a pulse separating circuit which separates the reference pulses superimposed on the common power/signal line;
 - a circuit which forms a signal in synchronization with the reference pulses; and
 - a video separating circuit which is installed in the processor unit and separates the video signal superimposed on the common power/signal line.

2. The electronic endoscope apparatus according to claim 1, wherein:

a processor-side pulse waveform superimposing circuit which superimposes processor-side reference pulses generated by a synchronizing signal generating circuit of the processor unit is installed as the pulse waveform superimposing circuit; and

the pulse separating circuit is installed in the electronic endoscope.

3. The electronic endoscope apparatus according to claim 1, wherein:

a scope-side pulse waveform superimposing circuit which superimposes scope-side reference pulses generated by a timing generator of the electronic endoscope is installed as the pulse waveform superimposing circuit; and

the pulse separating circuit is installed in the processor unit.

4. The electronic endoscope apparatus according to claim 1, wherein a power receiving circuit is installed in the electronic endoscope to full-wave rectify DC power superimposed with the video signal, using a full-wave rectifier circuit.

5. An electronic endoscope apparatus comprising:

an electronic endoscope equipped with an image pickup device;

a main unit which is connected with the electronic endoscope and includes a processor unit;

a common power/signal line which connects the electronic endoscope with the main unit;

a power supply circuit which is installed in the main unit and supplies power to the electronic endoscope via the common power/signal line;

a scope-side waveform superimposing circuit which superimposes a video signal obtained by the image pickup device on power transmitted through the common power/signal line and superimposes scope-side reference pulses on a predetermined blanking period in the video signal;

a processor-side waveform superimposing circuit which superimposes processor-side reference pulses on a predetermined blanking period that occurs in the video signal supplied through the common power/signal line and that is not superimposed with the scope-side reference pulses;

a processor-side separating circuit which separates the video signal and scope-side reference pulses superimposed on the common power/signal line;

a processor-side synchronizing signal generating circuit which forms a signal synchronized with the scope-side reference pulses outputted from the processor-side separating circuit;

a scope-side separating circuit which separates the processor-side reference pulses superimposed on the common power/signal line; and

a scope-side timing generator which forms a signal synchronized with the processor-side reference pulses outputted from the scope-side separating circuit.

6. The electronic endoscope apparatus according to claim 5, wherein:

the scope-side waveform superimposing circuit superimposes the scope-side reference pulses on a predetermined blanking period in the first field or first frame of the video signal; and

the processor-side waveform superimposing circuit superimposes the processor-side reference pulses on a predetermined blanking period in the second field or second frame of the video signal.

7. The electronic endoscope apparatus according to claim 5, wherein:

the scope-side waveform superimposing circuit superimposes the scope-side reference pulses on a predetermined blanking period in the second field or second frame of the video signal; and

the processor-side waveform superimposing circuit superimposes the processor-side reference pulses on a

predetermined blanking period in the first field or first frame of the video signal.

8. The electronic endoscope apparatus according to claim 5, wherein oscillation frequency of an oscillator installed in the processor-side synchronizing signal generating circuit differs from oscillation frequency of an oscillator installed in the scope-side timing generator.

9. The electronic endoscope apparatus according to claim 5, wherein the processor unit compensates the horizontal line signal of the video signal separated from the transmitted power with a horizontal synchronizing signal generated by the processor-side synchronizing signal generating circuit.

10. The electronic endoscope apparatus according to claim 5, wherein a power receiving circuit is installed in the electronic endoscope to full-wave rectify DC power superimposed with the video signal using a full-wave rectifier circuit.

11. An electronic endoscope apparatus comprising:
 an electronic endoscope equipped with an image pickup device;
 a main unit which is connected with the electronic endoscope and includes a processor unit;

an electromagnetic coupler which electromagnetically connects the electronic endoscope and the main unit to supply electric power and signals;

a power supply circuit which is installed in the main unit and supplies AC power to the electronic endoscope via the electromagnetic coupler;

a power receiving circuit which is installed in the electronic endoscope and draws AC power through the electromagnetic coupler;

a waveform superimposing circuit which superimposes a video signal obtained by the image pickup device on the power transmitted through the electromagnetic coupler and superimposes scope-side or processor-side reference pulses on a predetermined blanking period in a field or a frame of the video signal;

a separating circuit which separates the video signal superimposed on the power transmitted through the electromagnetic coupler and scope-side or processor-side reference pulses; and

a synchronizing signal generating circuit which forms a signal synchronized with the scope-side or processor-side reference pulses outputted from the separating circuit.

12. The electronic endoscope apparatus according to claim 11, wherein either the scope-side or processor-side reference pulses are superimposed on a predetermined blanking period in the first field or first frame of the video signal while

the other of the scope-side or processor-side reference pulses are superimposed on a predetermined blanking period in the second field or second frame of the video signal.